

## **DRAFT**

# ***Diversion Effects on Fishery Populations***

Several critical issues have arisen regarding the diversion effects on fishery populations. Listed below are the primary issues, a process to resolve these critical issues to the degree required to describe a preferred program alternative, and a progress report on the process.

### **Primary issues:**

1. Which species, populations, and life stages are most sensitive to diversion effects under no action and alternatives 1, 2, and 3? When and where are they most affected?
2. Can diversion effects in the South Delta be offset by habitat improvements and other common program actions?
3. To what extent can alternatives 1, 2, and 3 offset diversions effects as presently configured?
4. To what extent can diversion effects be offset by modifications to the alternatives or by operational changes?
5. What is the risk and chances of success of species recovery for each alternative?

Other specific technical issues will be addressed while seeking resolutions to the primary issues, such as:

- What increment of protection or improvement for fish species will be provided by other programs such as the Central Valley Project Improvement Act, biological opinions, etc.?
- What degree of benefit and impact will the common programs provide?
- What are the direct and indirect effects on fish populations resulting from each alternative and what is the expected response of the populations to these effects?
- What Sacramento River flow is required below a Hood diversion to protect salmon, striped bass and delta smelt?
- What survival rate can be expected for striped bass eggs and larvae and delta smelt

passing through Sacramento River screen and pumps in Alternative 2?

- Should there be a screen on the Sacramento River intake of Alternative 2?
- What are the logical stages for a preferred alternative?
- What is the range of biological criteria that should be considered in operations of the three alternatives?

**Resolution Process:**

An interagency/stakeholder team is identifying and clarifying specific issues/questions about diversion effects on fishery populations. The team will rely on existing science and judgement of informed fishery experts to:

**1) Develop a white paper on issues and impacts that:**

- Frames and clarifies the above issues.
- Describes the process used to resolve them
- Documents the team's process
- Clarifies what is known and what is not known
- Describes the fishery impacts and benefits of each alternative
- Delineates the associated risk and chance of success of species recovery for each alternative

**2) Write a white paper on biological criteria for operations that:**

- Describes the operations criteria assumed in the analysis and identifies the issues implied by the choice and definition of each individual operations criterion.
- Describes the time value of water concept as manifested by the operations of each program alternative.
- Delineates the operational biological criteria that provide the most benefit to fisheries considering other beneficial uses.
- Identification and a description of the issues associated with establishing interim operations criteria for the period following completion of the FEIS/R. Considering the options of extension of the Bay-Delta Accord, reliance on existing regulatory mechanisms, and potential new approaches.

**3) A peer review panel will be convened to review and critique the two white papers. The panel will be charged with determining if the process and assumptions were reasonable that led to the conclusions in the papers.**

**Progress:**

The interagency/stakeholder team has had four meetings to date. To provide a base to evaluate the primary issues, interagency/stakeholder species sub-teams were formed for Salmon and Steelhead, Striped Bass and American Shad, and Delta Smelt. The species sub-teams are developing matrixes on the effects of impact variables on life stages of species by month for each alternative. The primary species populations being evaluated are those most affected by diversions, which the team has concluded are:

- Sacramento River Salmon (all runs)
- San Joaquin River Salmon
- Striped Bass
- Delta Smelt

Each life stage of these species will be evaluated for each month of the year for:

- Existing Conditions
- No Action
- Common Programs
- Alternative 1
- Alternative 2
- Alternative 3

Direct and Indirect Effects in the Delta will be described for the populations considering:

- Entrainment
- Hydrodynamics
- Predation
- Handling
- Food Supply
- Shallow/near shore Habitat
- Water Quality (Contaminants)
- Water Quality (Temperature)
- Water Quality (Salinity)
- Agriculture Diversions
- Straying

The species sub-teams will report their findings to the whole interagency/stakeholder team for guidance and reconciliation of differences. Analysis done by the sub-teams will identify leads into what is important and what is not. A supporting narrative that explains and documents the teams thought process, what is known and not known, and associated risk or chance of success will be included in the white paper to the review panel.

**Schedule:**

Draft matrices by species with supporting logic..... May 15  
Final matrices by species..... May 31  
Draft white paper on issues and impacts..... June 15  
Start defining biological criteria for operations..... June 15  
Panel review of white paper on issues and impacts..... June 30  
Draft white paper on operations biological criteria..... July 1  
Panel and operations review of biological criteria white paper..... August 1  
Final issues and operations biological criteria white papers..... September 1